

ABSTRACT

The present invention is directed to a real-time automated video cognizer that functions as a facial video processor for detecting drowsiness in operators of motorized vehicles, including the use of a video cognizer to provide pattern recognition and control signal generation during monitoring of macroscopic or microscopic biological processes. 5 More specifically, the present invention accepts input from a video monitoring system that continuously captures the operator's facial images; employing three sequential means of processing the digitized video information to extract the position and configuration of drowsy-relevant facial features and numerically processes this information to yield a quantitative estimate of drowsiness probability in each epoch of monitoring. The means 10 of the present invention are noninvasive, do not restrict driver movement or performance, provide increased measurement reliability for actual driver behavior, and include the capability of generating or triggering suitable alarms when drowsiness occurs.

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